## INFLUENCE OF NEWLY-BUILT HOUSES ON THE HEALTH OF THEIR OCCUPIERS.

Dr. Sutro, in a recent number of the *Medical Times*, draws attention to the intimate connection kept up between the external air and the human organization, through the medium of the skin and lungs, and then he refers to experience to shew the slow and dangerous diseases to which inhabitants of newly-built houses are exposed, and he considers it, therefore, to be the duty of the sanatory police to remove or check these evils, by means of decisive prohibitory measures. The normal composition of the air is changed in newly-built houses, and thus diseases are created:—1st. *by an increased proportion of water* in the atmosphere; (*a*) from the wooden materials, which may be too new and damp, and which, therefore, fill the inclosed spaces with humidity, from evaporation; (*b*) from the stone materials, of which burnt bricks contain and attract the smallest proportion of humidity — field-stones more—sand-stones, and those prepared from dried clay, most; (*c*) from the materials used for cementing the stones, and for colouring and varnishing the walls. The mortar used for cementing the stones, consists of hydrate of lime, which gradually loses its water, and hardens by attracting carbonic acid from the atmosphere. The walls of those houses remain damp longest which have been plastered immediately after their completion, because the dried lime forms an external layer very difficult of penetration. As accidental causes, which may render houses damp, it is necessary to mention wet weather when building, damp situations, large cellars, and enclosure by other high edifices, which prevent the free access of sun and wind. 2nd. *The proportion of carbonic acid in the air* is diminished by the mortar which attracts it from the air, as before mentioned; it may also be attracted by colours containing acetate of copper, in which case the acetic acid escapes. No direct injury would, however, be caused by the diminution of carbonic acid, as it belongs to the matters excreted by the skin and lungs. 3rd. *The following foreign substances are mixed with the air*:—(*a*) *particles of lime*, which have been proved beyond doubt to exist in the atmosphere of new habitations, being suspended by the evaporation of the moisture; (*b*) *evaporation* of oil and metallic colours. Combinations of lead, copper, and arsenic are employed in the preparation of painter's colours. Lead volatilizes at the increased temperature of the rooms, copper does not, but wherever arsenical colours have been used, the air may absorb arsenious acid, and arseniuretted hydrogen gas may be formed by combination with hydrogen; (*c*) different chemical evaporations of damp new wood, mould, fungi, and grasses, which arise and putrify in damp habitations. P. Frank has already directed attention to the mould with which the furniture of newly-built houses is covered, and to the constant moisture of the clothes and linen, from which circumstance alone influences injurious to the inhabitants may be expected; for on account of the increased humidity of the surrounding atmosphere, not only is the skin prevented from free transpiration; but it is even induced to attract more moisture. This is also the case with the lungs, and thus the composition of the blood is rendered abnormal, and hydræmia of the whole body is produced; this is shewn by a pale anæmic face, wasted muscles, decrease of strength, sluggishness of all the functions, difficult respiration, and soft small pulse, which symptoms frequently terminate in external or internal dropsy. In other cases, protracted rheumatisms, articular inflammations, contractions or paralyses, are produced. In addition, the sojourn in a damp atmosphere is a frequent cause of the development of scrofula, intermittent and typhoid fevers, scurvy, quinsy, croup, pulmonary gangrene, puerperal fever, &c. Wounds and ulcers easily assume an unhealthy appearance, and have a tendency to take on gangrenous inflammation. The evaporation from organic substances favours the production of miasmata and contagions, for in no situations did the cholera occur more frequently, than in new, damp habitations. The inspiration of lime particles may predispose to diseases of the chest, or apoplexy. There can be no doubt, that the lead employed in painting the walls, evaporating at a higher temperature, may produce in those who are constantly exposed to its injurious exhalations, symptoms of chronic poisoning, disturbed digestion, colic, or paralysis, but this may be less feared from paints coloured by acetate of copper, inasmuch as it does not volatilize, and could, perhaps, at most by attracting carbonic acid, allow its acetic acid to escape. Chronic poisoning by arsenic may be produced by being exposed to the evaporation of Scheele's or Schweinfurt's green, from which arseniuretted hydrogen and arsenious acid often escape for a long time. Lastly, the constant moisture of the clothes and beds, and the frequent effect on the food causes certain injurious consequences on the constitutions of the inhabitants. Since then the early occupation of newly-built houses and recently plastered rooms cause so many diseases, and impart to children the germs of prolonged sickness and misery, it becomes the duty of the state to prevent these evils by all possible means. In order to guard against the perils and injuries enumerated, the author considers the following measures to be necessary. 1° Official examination of the materials before the commencement of the building, the enforcement of proper arrangements as regards the building itself. Thus, in public contracts for any building, to be erected in summer, the condition ought to be made, that the materials should be procured and dried during the preceding winter, and the term of completing any edifice should always be regulated according to the weather. Lead and arsenical colours for painting the walls should be entirely forbidden. 2° A house should not be inhabited before a fixed time after its completion had elapsed. Some authors think a year should be the period fixed. Considering the different effects of different localities, a house in town should remain uninhabited for a year, and in the country, where sun and air have free access, for half a year, after it has been finished. Should any house be dried before the time appointed, the proprietor might request the sanatory commission to examine it, when, if sufficiently dry, it might be inhabited. 3° A commission should be appointed for the purpose of examining every newly-built house, and testifying to its soundness before it is inhabited. Austria presents evidence of the feasibility of such an arrangement. 4° Instruction of the people as regards the injuries caused by inhabiting newly-built houses, &c., and as regards the means to be taken for the purpose of counteracting these injuries. The above commission not being generally introduced, nor put in force in cases of repairing, painting, &c., people ought to know to what diseases they are liable by exposing themselves to such injurious evaporation, and if compelled by circumstances to submit, they ought to use the following precautions:—first, drying should not be confined to one room, but to all the adjoining rooms. Mould, fungi, &c., should be rubbed and washed off with the greatest care. Fires of dry brushwood should be frequently lighted, and the windows should be opened. Muriate of lime or sulphuric acid should be put in different places to attract the moisture. To purify the air from other injurious matters, the following substances are recommended, chlorine, nitric acid vapours, fumes of sulphur, evaporation of vinegar, coarsely powdered and moistened charcoal put in different places, fumigations with the vapours of elder berries. For rooms already inhabited a solution of chloride of lime is the most proper substance. Drawers and other furniture ought not to be placed too near the damp walls, and if the latter should be covered with mould, they ought to be touched with a solution of chloride of lime. In addition, warm and dry clothes must be provided, and the bed must not stand too near the walls. Straw or feather-beds must be changed frequently, or exposed to the sun.

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Birkenhead Market.—The new market-house at Birkenhead was opened on Saturday week for the first time. The building is one of the largest in the kingdom, and is said to be superior to any thing in its admirable arrangements and accommodations. Large quantities of eatables of all sorts were displayed at the various stalls, and the purchases made were such as to ensure success to the renters of the shops and stalls. The entire cost of the building is about 24,000*l*.

## PURIFYING WELLS, &c.

Sir, — Seeing an extract from The Builder respecting a suggestion of mine for purifying wells, cesspools, &c., I beg to state that the method communicated by me to the Society of Arts and Sciences, and rewarded by them by an honorary testimonial, was quite different to throwing a quantity of lime into the well. If there is a depth of water in the well the lime will be absorbed by it; if thrown into a dry well, it will be of no use whatever. The process is simply this:—On finding a well contaminated with carbonic acid gas (and no man ever ought to descend a well before this is ascertained, by lowering a lighted candle, which will be extinguished, if there be foul air, on coming in contact with the vapour), take about half a bushel of fresh burnt lime, put it in a bucket or kettle, pour water on it sufficient to slake it, but no more. When the lime has steamed a short time, lower it down in a steaming state, so that the bottom of the bucket is close to or rests upon the surface of the water in the well. By lowering it to this depth, if the well is foul near the bottom, it will be the more effective. It is by the affinity existing between the lime and the carbonic acid gas that the vapour is destroyed; by that affinity the carbonic acid gas seizes upon the lime, and is incorporated with it, and forms a carbonate of lime, which is perfectly harmless. In ten minutes the well will be in a pure state. I might add much more upon the effects of lime, used similarly, in vaults, graves, and vats, but, fearing to be too prolix, I conclude for the present. I am, Sir, &c.,

A. J. Greks, Bricklayer.

Sudbury, July 19th, 1845.

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## SUSPENSION PIER AT WESTON-SUPER-MARE, BRISTOL.

It is proposed to annex the Island of Birnbeck to the main land, by means of a suspension-bridge on the principle invented by Mr. Dredge, of Bath. In opposition to this, it has also been proposed to approach the island by means of a roadway, formed of loose stones at the base, with a crown on the top of solid masonry; but as the difference in the cost will only be a few hundred pounds, it is not likely that the latter will find much favour.

Mr. Dredge has furnished the committee with several designs for the suspension-bridge. The whole length to be crossed is about 1,400 feet; of this he proposes that about 1,100 should be accomplished by means of the bridge to be composed of iron, the central span of which would be 545 feet, and the outside openings 272 feet. The remaining 300 feet he proposes should be solid masonry. The height of the towers above the roadway is intended to be 42 feet. The platform is designed to be hung on two main suspending chains.

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President of the Royal Academy.—The academicians find the selection of a new president so difficult a task, that they are unwilling to accept Sir Martin Shee's resignation, although it is certain that the state of his health even if he accede to their request that he should retain the office, will prevent him from performing its duties. An address was presented to Sir Martin a few days since, soliciting him to retain the presidentship, but we have not yet heard his reply.

The Association of Architectural Draughtsmen.—This association seems now to be very satisfactorily organized, and promises to be useful amongst other ways, in facilitating communication between its members and the profession generally. Architects may here at once learn the addresses of draughtsmen who are unemployed, and see their works. The place of meeting is 33, Southampton-street, Strand.

Reduction in the Price of Gas.—In addition to the cases we gave last week of provincial companies having resolved to reduce the price of gas, we have heard that at Bristol both companies have lowered their prices to 7*s.* per 1,000 cubic feet; at Aberdeen 4*s.* satisfies the rival companies; and at Doncaster a reduction of 10*d.* on the same quantity has been effected during the past fortnight. With respect to the reduction at Aberdeen it is worthy of remark that the far more extensive companies of Edinburgh, Leith, and Glasgow, having the coal at their very doors, charge six-shillings and sixpence.

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